



April 2, 2007  
Project No. 5-212-102100

County of Mono  
Minaret Mall  
Suite P  
P.O. Box 347  
Mammoth Lakes, California 93546

**Attention: Mr. Gerry Le Francois, Planner**

**Re: Review of: *Sierra Geotechnical Services's Third Response  
To Peer Review And Additional Geologic Information  
Phase 1 and Phase 2 of Tentative Tract Map 37-46  
White Mountain Estates Subdivision  
Chalfant Valley, Mono County, California***

## **1 INTRODUCTION**

At the request of the Mono County Planning Department, AMEC Earth & Environmental, Inc. (AMEC) is pleased to provide this geotechnical review of the revised Site Geologic Map with revised lot boundaries and building setbacks prepared by Sierra Geotechnical Services Inc. (SGSI). The Tentative Tract Map, geologic reports, geologic maps and response to review comments for Tentative Tract 37-46 that have been reviewed by AMEC in support of the proposed development include the following:

- Earthquake Fault Zone Hazard Evaluation, Phase 2 of Tentative Tract Map 37-46, White Mountain Estates Subdivision, Chalfant Valley Mono County, California. Prepared by Sierra Geotechnical Services, Inc. dated March 22, 2005.
- Addendum Report, Results of Additional Subsurface Fault Investigation, Lot 46 of Tentative Tract No. 37-46, White Mountain Estates Subdivision, Chalfant Valley, Mono County, California. Prepared by Sierra Geotechnical Services, Inc. dated October 3, 2005.
- Response to Peer Review, Phase 2 of Tentative Tract 37-46, White Mountain Estates Subdivision, Chalfant Valley, Mono County, California. Prepared by Sierra Geotechnical Services, Inc. dated March 29, 2006.
- Site Geologic Map, with building setback revisions. Prepared by Sierra Geotechnical Services, Inc. Revisions dated June 6, 2002
- White Mountain Estates Tentative Tract Map No. 37-46. Prepared by Bear Engineering, Inc. Dated April 4, 2004, revised April 24, 2006.

- Third Response to Peer Review, Phase 2 of Tentative Tract 37-46, White Mountain Estates Subdivision, Chalfant Valley, Mono County, California. Prepared by Sierra Geotechnical Services, Inc. dated August 16, 2006, revised October 2, 2006 and March 14, 2007.
- Additional Geologic Information, Earthquake Fault Zone Hazard Evaluation and Determination of Building Setbacks for Tract 37-46, White Mountain Estates Subdivision – Phase 1, Chalfant Valley, Mono County, California. Prepared by Sierra Geotechnical Services, Inc. dated August 24, 2006, revised October 2, 2006 and March 22, 2007.

The purpose of AMEC's review is to evaluate the maps and reports listed above with respect to the requirements of the Alquist Priolo Earthquake Fault Zoning Act of 1972 and the guidelines for evaluating the hazard of fault rupture as adopted by the California State Mining and Geology Board on May 9, 1996. The scope of the geotechnical review included the following:

- Review of reference reports, previous technical review comments, and responses, geologic maps, aerial photographs and the revised Tentative Tract Map No. 37-46.
- Examination of site geomorphic conditions and their relationship to the mapped conditions discussed in the reference reports.
- Review of the geotechnical reports and attached maps, cross sections, boring logs and trench logs that have been submitted to the County of Mono in support of the project.
- Review of the revised Geologic Site Map with revised property boundaries and building setbacks.
- Preparation of review comments for the County of Mono.

### **3 TENTATIVE TRACT 37-46**

The SGSI investigations of the potential for fault rupture within Tentative Tract 37-46 included review of available published and unpublished references, study of aerial photographs, site reconnaissance and excavation of approximately 4,900 lineal feet of fault trenches. Based on available data, SGSI initially concluded that a few areas large enough for habitable structures were found within the tract as evidenced in conditions exposed in Trenches T-5, through T-13.

Based upon review of the SGSI reports dated March 22, 2005 and October 3, 2005 AMEC provided a list of concerns with respect to habitable building sites within Lots 39 and 40, Lots 41 through 44, Lot 45 and Lot 47 that were discussed in the AMEC review letter of January 12, 2006. As a consequence SGSI prepared and submitted the Response to Peer Review letter dated March 29, 2006 that addressed each of the AMEC concerns. AMEC's opinions with respect to the SGSI Response to Peer Review report were summarized in the review dated April 25, 2006.

Subsequent to the AMEC review, the project surveyor, Bear Engineering, revised the tentative tract map changing the numbering and configuration of many of the lots in Phase 1 and 2. Phase 1 now includes 39 residential lots and Lot B, a common area intended for siting of propane and water storage tanks, located immediately east of Lot 35. Phase 2, the portion of the tract immediately east of Phase 1 and the area principally within the Alquist Priolo Earthquake Fault Zone, now includes six residential parcels, Lots 40 through 45, three common area-open space lots designated as Lot A, C and D and a remainder parcel consisting of approximately 19 acres designated as Specific Plan/Single Family Residence.

In response to the AMEC review letters of April 25, 2006 and June 13, 2006 the project geotechnical consultant has submitted an additional report entitled Third Response to Peer Review dated August 16, 2006. This report was subsequently revised October 2, 2006 and again on March 14, 2007 to address changes made to the Tentative Tract Map. This report discusses the potential for active faulting in Phase 2 of Tract 37-46 and provides recommendations for building setbacks, habitable zones and minimum building areas for Lots 40 through 45 and the Specific Plan/Single Family Residence remainder parcel. The report includes a Revised Site Geologic Map based on the most recent Tentative Tract Map with revised lot configurations and numbers along with revised building setbacks based on the additional fault trenches, Trenches T-11 and T-12. The new map also includes the approximate location of Minimal Building Areas within Lots 40 through 45 and the Specific Plan/Single Family Residence remainder parcel.

The project geotechnical consultant has also provided an additional report entitled Additional Geologic Information, Earthquake Fault Zone Hazard Evaluation and Determination of Building Setbacks for Tract 37-46, White Mountain Estates Subdivision – Phase 1, Chalfant Valley, Mono County, California dated August 24, 2006 (revised October 2, 2006 and March 22, 2007). The report discusses the discovery of active faulting that appears to transect Lots 31 through 36 within Phase 1 of Tract 37-46. Active faulting was observed and mapped in Fault Trench T-13 which reportedly was mistakenly excavated within Lot 31. The mapped traces of the faults within Lots 31 through 36 are based upon the correlation and projection of the exposures in Fault Trench T-13 with exposures in Fault Trench T-8 located roughly 920 feet to the southeast within Common Lot B.

The discussions below presents our understanding of the current issues with respect to the seismic hazard assessment of the site and AMEC's opinions and recommendations with respect to the recommended habitable areas within Phase 1 and Phase 2 of Tentative Tract 37-46 as shown on the revised Site Geologic Map prepared by SGSI and as discussed in the reports referenced above.

- The mapped locations of the active fault traces within Lots 31 through 36 of Phase 1 are based upon projections of data from Fault Trenches T-8 and T-13 which are more than 900 feet apart. The proposed 50 foot setback from active faulting within these lots is considered appropriate. The proposed habitable areas and possible minimal building areas within these lots appear to meet the requirements of the Alquist Priolo Earthquake Fault Zoning Act of 1972 and the guidelines for evaluating the hazard of fault rupture as adopted by the California State Mining and Geology Board.

- The habitable areas within Lots 40, 41, 43, 44, 45 and the Specific Plan/Single Family Residence remainder parcel in Phase 2 of Tentative Tract 37-46 are based on 50-foot setbacks from mapped active faults. The additional Fault Trenches, T-11 and T-12, have provided more accurate locations for the mapped active fault traces within Lots 43 and 44. As such, the proposed habitable areas and possible minimal building areas within these lots appear to meet the requirements of the Alquist Priolo Earthquake Fault Zoning Act of 1972 and the guidelines for evaluating the hazard of fault rupture as adopted by the California State Mining and Geology Board.
- The proposed habitable area within Lot 42 is based on a setback from mapped active faults that varies from 45 to 50 feet. The 45-foot setback is considered appropriate along the easterly side of Lot 42 where the location of active fault traces appears to be relatively well constrained by accurately mapped faults in Fault Trenches T-7, T-8 and T-11. Along the westerly side of Lot 42 the proposed setback is based upon the projection of two active-fault traces mapped in Fault Trench T-8, near the southerly margin of the property, with two similar active fault traces mapped in Fault Trench T-12 located in Lot 31 more than 900 feet to the north. The proposed 50-foot setback along the westerly side of Lot 42 and is consistent with the setbacks established in the adjacent Lots 31 through 36 which are also impacted by the same fault. The variable setbacks proposed for Lot 42 appear to meet the requirements of the Alquist Priolo Earthquake Fault Zoning Act of 1972 and the guidelines for evaluating the hazard of fault rupture as adopted by the California State Mining and Geology Board.
- The current Tentative Tract Map No. 37-46, prepared by Bear Engineering indicates that two 60,000 gallon domestic water supply tanks and three 1,000 gallon propane tanks will be located in Common Lot B. These structures are situated within 45 feet of active fault traces mapped in Fault Trench T-7 and T-8. The proposed storage facilities are not considered habitable structures and as such are not covered by the requirements of the Alquist Priolo Earthquake Fault Zoning Act of 1972. However, the proposed water tanks are considered essential structures providing water necessary for fire suppression. The proposed propane tanks contain potentially explosive materials and could be considered hazardous facilities. These facilities should be designed and sited so that the potential for failure or damage as a result of earth quake related activity is minimized. During construction the project geotechnical consultant should confirm that building areas for these facilities will not be affected by active faulting.
- Loose soils associated with the backfill of the exploratory fault trenches should be removed and properly compacted prior to the construction of residential structures or their supporting foundations.
- Based upon review of the fault investigation reports and subsequent responses to review letters it is AMEC's opinion that the project geotechnical consultant has fulfilled the requirements of the Alquist Priolo Earthquake Fault Zoning Act of 1972 and the



guidelines for evaluating the hazard of fault rupture as adopted by the California State Mining and Geology Board. As such, AMEC recommends approval of Tentative Tract 37-46 from an active faulting perspective.

#### **4 LIMITATIONS**

Our services consist of providing technical advice to the County of Mono regarding the geotechnical recommendations presented in the referenced reports. Our services are limited to review of documents provided by the County of Mono and the Project Geotechnical Consultant. AMEC's review should not be considered as a certification, approval or acceptance of the project consultant's work, nor is it meant as an acceptance of liability for final design or construction recommendations made by the project consultant of record or the project designers or engineers. The opinions presented in this review are for the County of Mono's use only. Our opinions, conclusions and recommendations are made in accordance with generally accepted principles and practices of the geotechnical profession. No other warranty, express or implied is made or intended by providing our services on this project.

AMEC appreciates the opportunity to submit this review. If you have any questions or comments please contact Mark McLarty at our Anaheim office.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Mark W. McLarty", with a long horizontal stroke extending to the right.

Mark W. McLarty,  
Principal Engineering Geologist  
CEG 1107 (Expires April 30, 2008)  
MWM/DRB/dc

Encl.: None

c: Mr. Gerry LeFrancois, Addressee (2)